

L Number	Hits	Search Text	DB	Time stamp
1	42	m unting near apparatus and storage adj disk	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:32
2	42	mounting near apparatus and carousel	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:33
3	73	apparatus and arm and carousel and frame and assembly near arm	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:38
4	87	carousel and frame and assembly near arm	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:41
5	0	81956.URPN.	USPAT	2003/02/12 08:40
6	1	2002-302509.NRAN.	DERWENT	2003/02/12 08:40
7	0	81956.URPN.	USPAT	2003/02/12 08:41
8	1	"disk drive components" and " assembly apparatus" and "assembly arm"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:43
9	71	"assembly apparatus" and "assembly arm"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:45
10	10	"assembly arm" and carousel and base and components	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:47
11	1799	"disk drive assembly"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:48
12	802	"disk drive assembly" and apparatus	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:49

13	10	"disk drive assembly" and apparatus and carusel and base	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 08:54
14	8	("4677744" "5404636" "5537272" "5555144" "5811678" "5824898" "5859358" "5903540").PN.	USPAT	2003/02/12 08:51
15	13	("3817088" "3854347" "4214481" "4467649" "4626147" "4903398" "4949579" "5404636" "5422776" "5465476" "5555144" "5811678" "5842270").PN.	USPAT	2003/02/12 08:52
16	5	("4603567" "5297413" "5459921" "5465477" "5537269").PN.	USPAT	2003/02/12 08:53
17	13	("3817088" "3854347" "4214481" "4467649" "4626147" "4903398" "4949579" "5404636" "5422776" "5465476" "5555144" "5811678" "5842270").PN.	USPAT	2003/02/12 08:54
18	15	"disk drive assembly" and merging and apparatus	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:08
19	8	("4502133" "4862584" "4980783" "5150512" "RE36608" "6041488" "6049969" "6105240").PN.	USPAT	2003/02/12 08:56
20	13	("4772972" "4862584" "5077888" "5309628" "5404636" "5465476" "5471733" "5551145" "5555144" "5557834" "5692289" "5706574" "5826325").PN.	USPAT	2003/02/12 08:58
21	19	("4677744" "4862584" "5077888" "5309628" "5404636" "5537272" "5551145" "5555144" "5557834" "5692289" "5811678" "5824898" "5859358" "5903540" "5987735" "6049969" "6094804" "6105240" "6158112").PN.	USPAT	2003/02/12 09:07
22	11	"disk drive assembly" and carousel and base	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:10
23	182	"drive assembly" and carousel and base	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:29



24	40	"assembly apparatus" and carous l and base	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:31
25	22558	carousel and assembly arms and 414/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:32
26	27	carousel and assembly near arms and 414/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:37
27	2	carousel and assembly near arms and 294/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:34
28	12	carousel and base and assembly and arms and 294/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:43
30	998	disk near drive and assembly near arms and 360/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:41
29	25	disk near drive and assembly near arms and 414/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:41
31	0	disk near drive and assembly near arms and carousel and 360/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:42
33	54	carousel and base and assembly and arms and 198/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:43
32	19	carousel and base and assembly and arms and 901/\$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:47
34	8	("4607430" "4653159" "4784564" "4787138" "5119546" "5127159" "5157830" "5575060").PN.	USPAT	2003/02/12 09:46

35	0	removable near carousel and base and assembly near apparatus	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:48
36	15	removable near carousel and base and arm	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:50
37	8	removable near carousel and assembly same arms	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:52
38	26	michael near Pfeiffer .inv.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 09:52
39	6	("3968501" "4215922" "5060099" "5249254" "5661615" "5706574").PN.	USPAT	2003/02/12 09:53
42	3	6041488.URPN.	USPAT	2003/02/12 10:01
43	5	("5136450" "5333080" "5615067" "5781374" "5880905").PN.	USPAT	2003/02/12 10:02

ed shim 314 to a pick and place robotic arm 318. The robotic arm 318 supportingly engages the desired shim 314 in the carousel 316, and with a vacuum assisted end effector (which is not shown but which is of conventional construction), picks the shim 314 from the carousel 316 and delivers the shim 314 to the shim attachment assembly 296.

The embodiment of the present invention as illustrated by FIG. 10 uses a carousel 316 which holds ten stacks of shims 314, so as many as ten differently weighted shims 314 can be stored in the carousel 316. From FIG. 12 it will be noted that the characteristic imbalance of a particular shim 314 is determined by the width of a gap 319 in the shim 314. For this embodiment of the invention it has been determined that weighted shims 314 ranging in imbalance from 11.9 mg-in. to 69.5 mg-in. provide a sufficient range of shim weights to successfully balance substantially all expected imbalance conditions within a specified maximum imbalance condition of 10 mg-in. per plane. For a further discussion of the selection and use of weighted shims for balancing a disc pack see U.S. Pat. No. 5,555,144 entitled BALANCING SYSTEM FOR A DISC DRIVE DISC ASSEMBLY issued Sep. 10, 1996 to Wood et al., assigned to the assignee of the present invention.

FIG. 18 is a partial sectional view showing the manner in which the slider 430 is linked by a linkage 438 to each of the spreader pins 420, so that vertical movement of the slider 430 imparts articulating movement to the spreader pins 420. The linkage 438 has a ball 440 at a first end that is receivingly disposed in a socket 442 of the slider 430. The distal end of the linkage 438 is joined by a pin 444 to a medial portion of the spreader pin 420. At a lower

rotatable carousel, and the clip feeder station supports a plurality of clips in multiple trays. As the lids are exhausted from each stack in the carousel, the carousel rotates to present a new stack to the gripper arm of the lid feeder station. When all stacks of the carousel are exhausted, the carousel is rotated away from the pick arm and a new carousel provided. Likewise, as the clips are exhausted from a tray, another tray is placed into position to feed the gripping assembly of the robot arm.

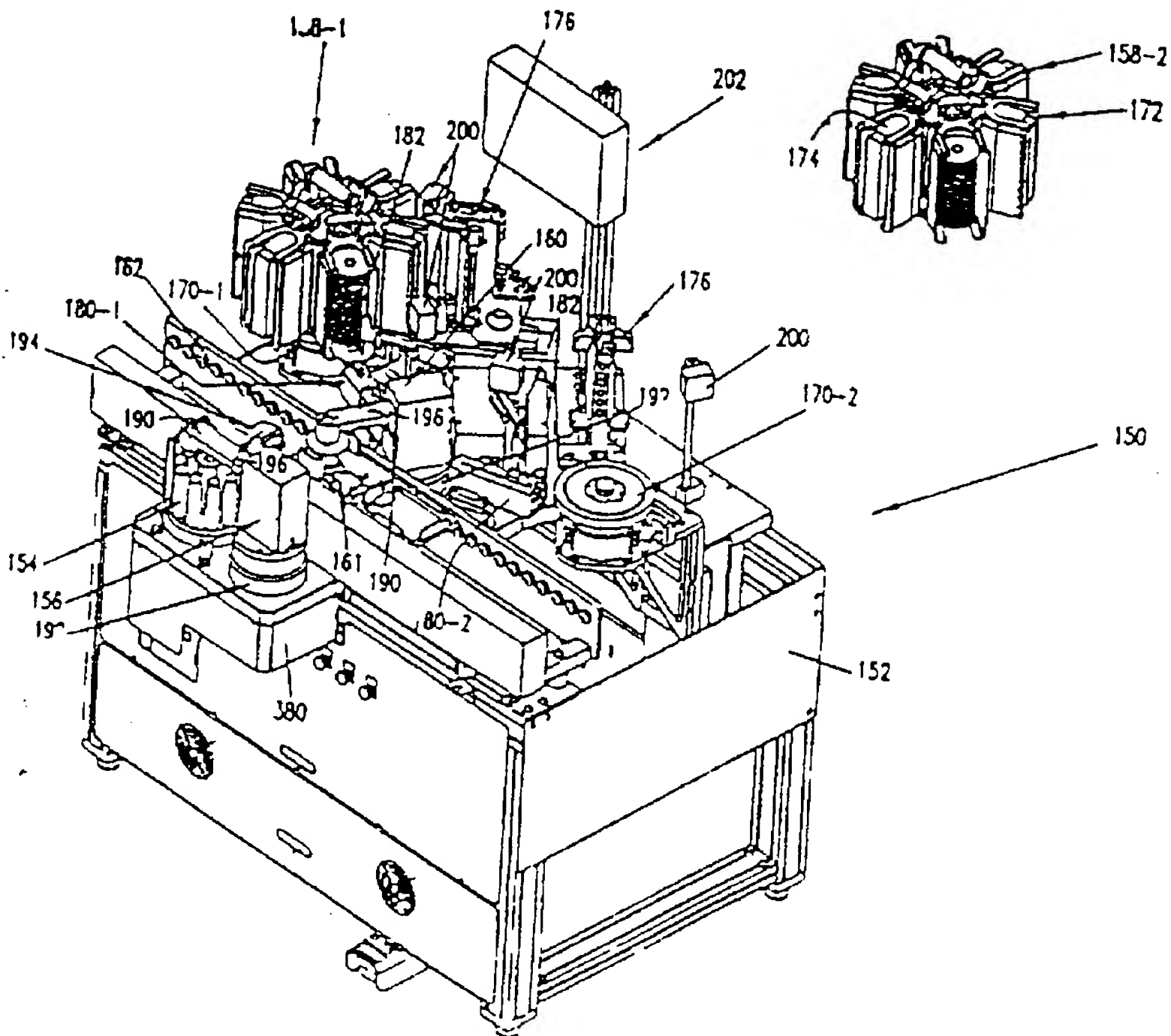
FIGS. 3A-3C show the relative positions of the programmable robot arm during its three primary operating positions according to the method of the invention;

FIG. 6 is an elevation of the preferred gripper assembly of the robot arm;

In the exemplary embodiment, a method and apparatus are provided for automatically placing a lid on an electronic component package to facilitate the formation of a hermetically-sealed device. As described generally above, each lid is placed over an integrated circuit die supported in the package and the

L Number	Hits	Search Text	DB	Time stamp
1	2	5,555144.pn.	USPAT; US-PGPUB; EP ; JP ; DERWENT; IBM_TDB	2003/02/12 10:33
2	0	merge and dismerge and disc adj assembly	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 10:33
4	0	364/468.01.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 10:36
3	134	merge and disc adj assembly	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 10:39
5	0	merge and demerge and carousels and base same assembly	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 10:40
6	923	carousels and base same assembly	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 10:44
7	386	carousels and base same assembly and assembly same arm	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 10:55
8	92	carousels and base and assembly near arms	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 11:11
9	12	"disc drive component assembly"	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 11:16
10	69	"component assembly" and arms and carousel	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/02/12 11:16

11	4	("4787141" "4896418" "5205026" "5271490").PN.	USPAT	2003/02/12 11:23
12	8	("4143776" "4557655" "4735540" "4886592" "4969790" "5165340" "5232505" "5248886").PN.	USPAT	2003/02/12 11:24
13	5	("3429466" "3976208" "4083908" "4197772" "4201284").PN.	USPAT	2003/02/12 11:25
14	16	4557655.URPN.	USPAT	2003/02/12 11:26



DERWENT-ACC-NO: 2002-302509
DERWENT-WEEK: 200243
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TITLE: Disk drive components assembly apparatus has
assembly arm which is
operated to sequentially unload disk stacks from carousel
and to assemble disks
in disk drive

INVENTOR: JOHNSON, E D; PFEIFFER, M W

PATENT-ASSIGNEE: SEAGATE TECHNOLOGY LLC[SEAGN]

PRIORITY-DATA: 1998US-0129468 (August 4, 1998) ,
1998US-075888P (February 25,
1998)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE
PAGES	MAIN-IPC	
SG 81956 A1	July 24, 2001	N/A
053	G11B 005/84	

APPLICATION-DATA:

PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE		
SG 81956A1	N/A	1999SG-0000238
January 28, 1999		

INT-CL (IPC): G11B005/84

RELATED-ACC-NO: 2002-024620;2002-401712 ;2002-401714

ABSTRACTED-PUB-NO: SG 81956A

BASIC-ABSTRACT: NOVELTY - A carousel which supports disk
stacks at spaced
locations, is connected rotationally to a frame. A motor
is connected to the
carousel base to sequentially position each disk stack for
assembly. An
assembly arm (190) is operated between the carousel base
and an unassembled
disk drive for sequentially unloading the disk stack from
the carousel and

assembling disks in the disk drive.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for method for assembly a spindle motor of a disk drive.

USE - For assembling disk stack and spacers of a spindle motor in a disk drive.

ADVANTAGE - More number of disk drive components are assembled with high speed.

DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of assembly apparatus.

Assembly arm 190

CHOSEN-DRAWING: Dwg.3/15

TITLE-TERMS:

DISC DRIVE COMPONENT ASSEMBLE APPARATUS ASSEMBLE ARM
OPERATE SEQUENCE UNLOAD
DISC STACK CAROUSEL ASSEMBLE DISC DISC DRIVE

DERWENT-CLASS: T03 V04

EPI-CODES: T03-A08A1C; T03-F; T03-N01; V04-V09;

SECONDARY-ACC-NO:

Non-CPI Secondary Accession Numbers: N2002-236552

DERWENT-ACC-NO: 2002-302509

DERWENT-WEEK: 200243

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TITLE: Disk drive components assembly apparatus has assembly arm which is operated to sequentially unload disk stacks from carousel and to assemble disks in disk drive

----- KWIC -----

NOVELTY - A carousel which supports disk stacks at spaced locations, is connected rotationally to a frame. A motor is connected to the carousel base to sequentially position each disk stack for assembly. An assembly arm (190) is operated between the carousel base and an unassembled disk drive for sequentially unloading the disk stack from the carousel and assembling disks in the disk drive.

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Disk drive components assembly apparatus has assembly arm which is operated to sequentially unload disk stacks from carousel and to assemble disks in disk drive

DISC DRIVE COMPONENT ASSEMBLE APPARATUS ASSEMBLE ARM
OPERATE SEQUENCE UNLOAD
DISC STACK CAROUSEL ASSEMBLE DISC DISC DRIVE

US-PAT-NO: 6094804

DOCUMENT-IDENTIFIER: US 6094804 A

TITLE: Balance correction station for a disc drive

DATE-ISSUED: August 1, 2000

INVENTOR-INFORMATION:

NAME CODE COUNTRY	CITY	STATE	ZIP
Chuang; Thomas Hong N/A	Oklahoma City	OK	N/A
Horning; Steve Gregory N/A	Oklahoma City	OK	N/A
Jenkins; James Randal N/A	Yukon	OK	N/A

US-CL-CURRENT: 29/603.03; 29/407.01 ; 29/709 ; 29/737 ;
29/783 ; 29/784
; 29/791 ; 29/799 ; 73/460 ; 73/462 ; 73/66

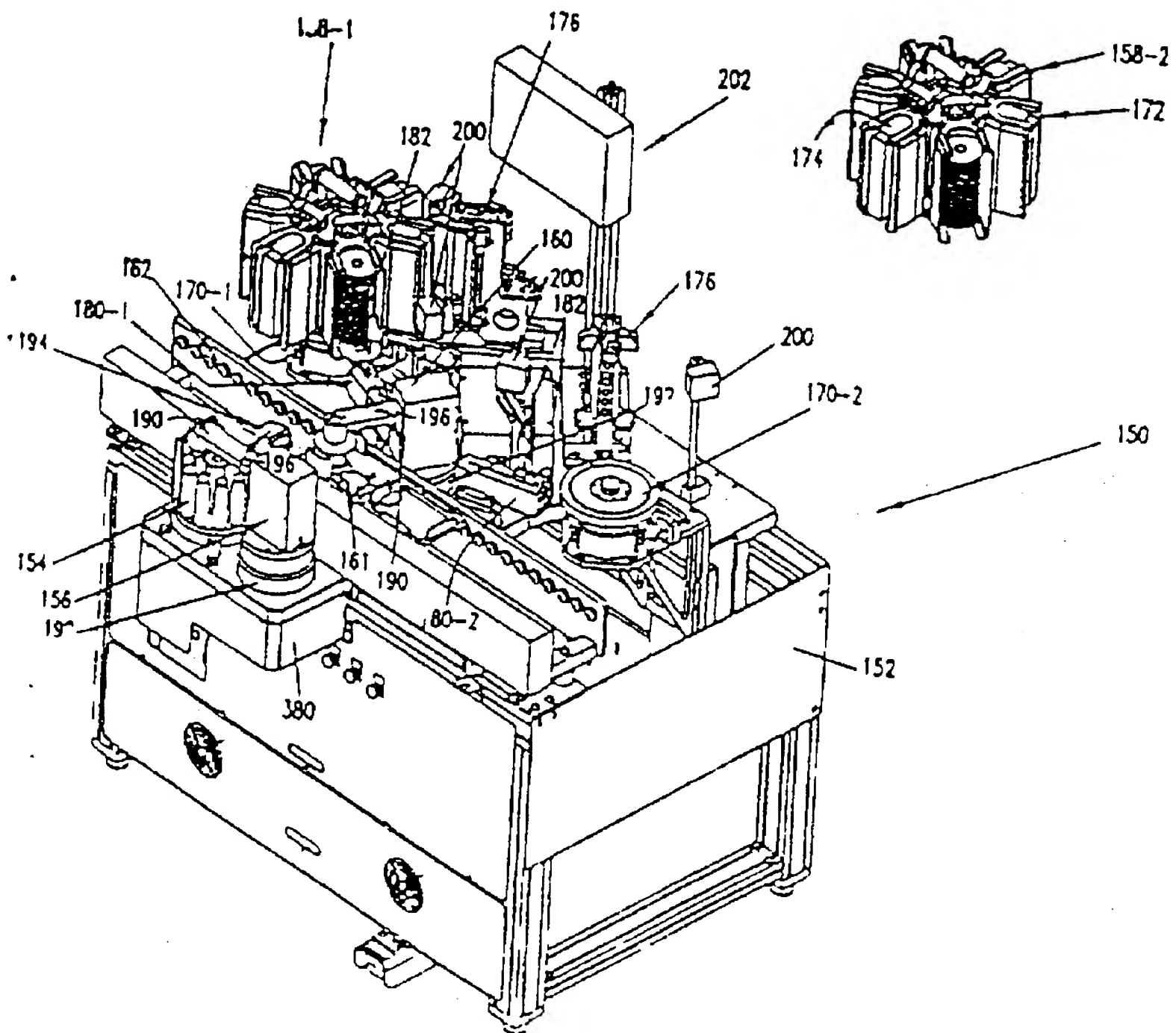
ABSTRACT:

An apparatus and method for automatically correcting the dynamic imbalance of a disc pack of a disc drive, the disc pack conveyed to a first selected position in a balance correction assembly station where a rotary positioner lifts and rotates the disc pack to a reference position for the attachment of weighted shims to the disc pack. A shim selector assembly delivers a selected shim, and an end effector transfers the selected shim to a shim attachment assembly. The shim attachment assembly rotates and spreads open the shim so that the disc pack can be receivingly engaged thereby, and the shim attachment assembly releases the selected shim to lockingly engage the disc pack. A flipping assembly reverses the disc pack for placement of another selected shim to the other end of the disc pack, as required.

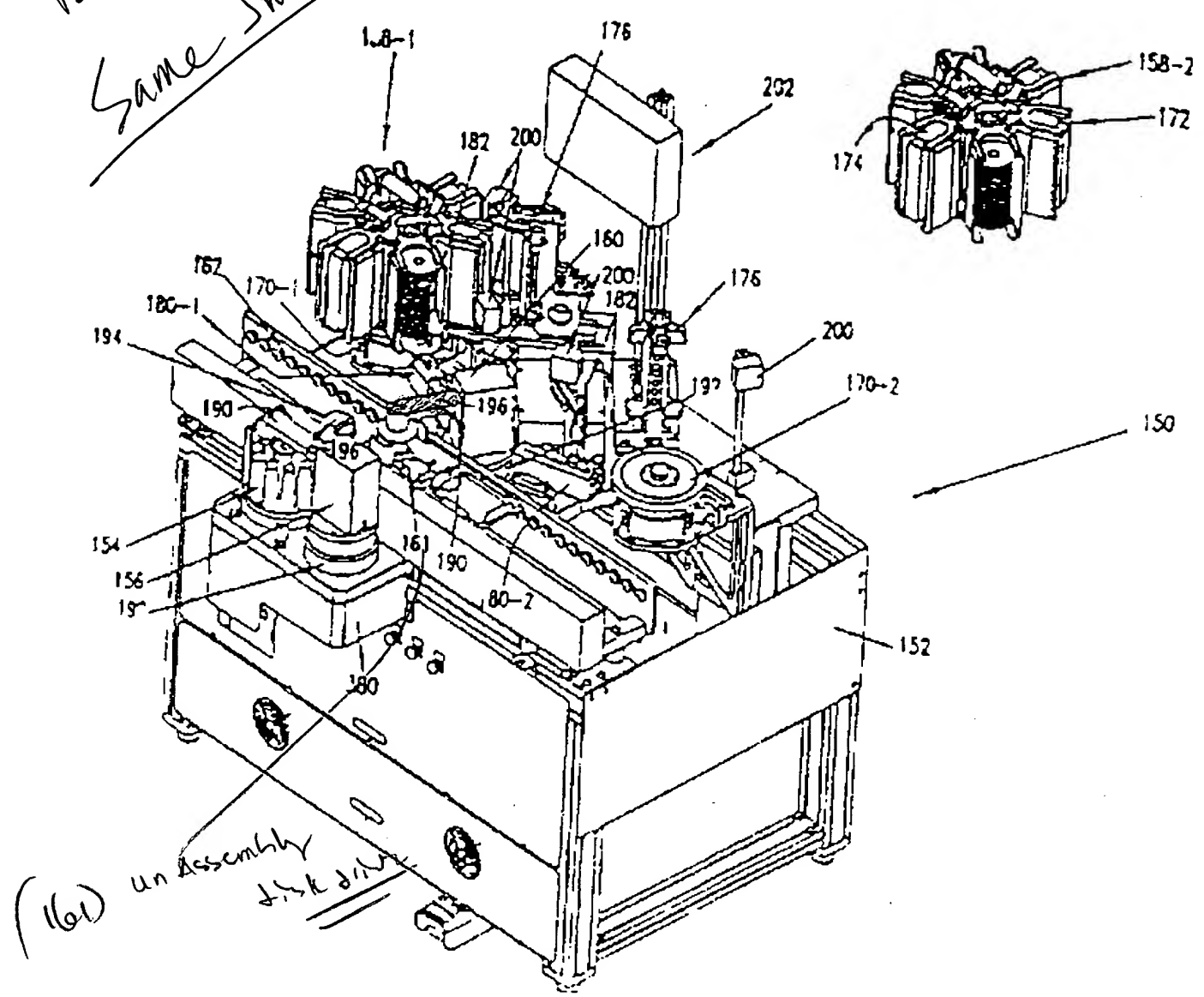
9 Claims, 34 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 24



*Derwent
Same Invention*



Title Terms: DISC; DRIVE; COMPONENT; ASSEMBLE; APPARATUS; ASSEMBLE;
ARM;
OPERATE; SEQUENCE; UNLOAD; DISC; STACK; CAROUSEL; ASSEMBLE; DISC;
DISC;
DRIVE
Derwent Class: T03; V04
International Patent Class (Main): G11B-005/84
File Segment: EPI
Manual Codes (EPI/S-X): T03-A08A1C; T03-F; T03-N01; V04-V09

1/19/1

DIALOG(R)File 350:Derwent WPIX

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014481806 **Image available**

WPI Acc No: 2002-302509/200234

Related WPI Acc No: 2002-024620; 2002-401712; 2002-401714

XRPX Acc No: N02-236552

Disk drive components assembly apparatus has assembly arm which

is operated to sequentially unload disk stacks from carousel and to assemble disks in disk drive

Patent Assignee: SEAGATE TECHNOLOGY LLC (SEAG-N)

Inventor: JOHNSON E D; PFEIFFER M W

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
SG 81956	A1	20010724	SG 99238	A	19990128	200234 B

Priority Applications (No Type Date): US 98129468 A 19980804; US 9875888 P

19980225

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
SG 81956	A1		53	G11B-005/84	

Abstract (Basic): SG 81956 A1

NOVELTY - A carousel which supports disk stacks at spaced locations, is connected rotationally to a frame. A motor is connected

to the carousel base to sequentially position each disk stack for assembly. An assembly arm (190) is operated between the carousel base

and an unassembled disk drive for sequentially unloading the disk stack from the carousel and assembling disks in the disk drive.

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method for assembly a spindle motor of a disk drive.

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DESCRIPTION OF DRAWING(S) - The figure shows a perspective view of assembly apparatus.

Assembly arm (190)
pp; 53 DwgNo 3/15

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DERWENT-ACC-NO: 2002-302509

DERWENT-WEEK: 200243

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TITLE: Disk drive components assembly apparatus has assembly arm which is operated to sequentially unload disk stacks from carousel and to assemble disks in disk drive

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NOVELTY - A carousel which supports disk stacks at spaced locations, is connected rotationally to a frame. A motor is connected to the carousel base to sequentially position each disk stack for assembly. An assembly arm (190) is operated between the carousel base and an unassembled disk drive for sequentially unloading the disk stack from the carousel and assembling disks in the disk drive.

Disk drive components assembly apparatus has assembly arm which is operated to sequentially unload disk stacks from carousel and to assemble disks in disk drive

DISC DRIVE COMPONENT ASSEMBLE APPARATUS ASSEMBLE ARM
OPERATE SEQUENCE UNLOAD
DISC STACK CAROUSEL ASSEMBLE DISC DISC DRIVE